MOBILE APPLICATION DEVELOPMENT LEVERAGING IOT

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Abstract: People are smart and technologically driven, so they look for the better always. One of the interesting facts regarding mobile apps is that no other tool has ever been so common and so demanding until now. Mobile applications (apps) are a gateway between consumers and businesses, many of the successful organizations have been utilizing the power of Internet of Things (IoT) to a great extent through their mobile applications (apps). Only mobile applications (apps) can enhance (IoT) extensively.

This study highlights the importance of mobile applications (apps) in the current digital era. The growth of smart phone industry as well as Internet of Things (IoT) dependent on mobile applications (apps) or we can say this statement in vice-versa. All these technologies are complementing to each other.

Index Terms **- IoT, Internet, Mobile apps, smart phone, M-Commerce.**

I INTRODUCTION

The web has been around for a while but it was mostly people's product, so all of the information, pictures, recordings, games, books and trade were made by people and individuals. The internet is one of the most transformative and significant techniques ever invented. Now people can't live without it because the Internet is like a digital material that is one way or the other in our lives.

The internet of individuals is transforming the world, a fresh internet is emerging, and this new internet is about to be transformed again. This new internet does not simply involve connecting individuals but also linking stuff to the internet, making it a large deal. Since things can begin to share experiences with other items that function properly, you take stuff and then get the capacity to sense, communicate and touch and regulate and get a chance for stuff to interact and cooperate with others.

Many research works on m-commerce system focused on adoption and continuance of m-commerce system [5]

The objective of this paper is to measure the significance of mobile applications in the domain of internet of things.

Take a smart phone example, it has number of senses. It knows how many lights in the room have. It knows what you are saying to it and even it has an eye so it can see its surroundings, obviously it has the capability to communicate on a wireless network. In this context, it is meaningful to analyze the importance of mobile apps in IoT field.

This paper begins with finding relationship between two technologies. We then present the potential reasons behind why IoT requires mobile apps. This will be followed by need for IoT, presence of IoT in everywhere and how it's a game changer of new start ups. And some suggestions and recommendations for future work are mentioned in conclusion section.

II RELATION BETWEEN IOT AND MOBILE APP

Smart devices play a main role in IoT [4]. IoT and mobile apps both are two sides of one coin. Mobile apps are integrated with internet of things due to GPS, Bluetooth, WiFi, NFC etc various connectivity features present in smart phone. Both are complementing to each other. This relationship is keeps on growing as more devices are formed and corresponding mobile apps are developed. [10] The following image is showing how these devices are communicated with each other.

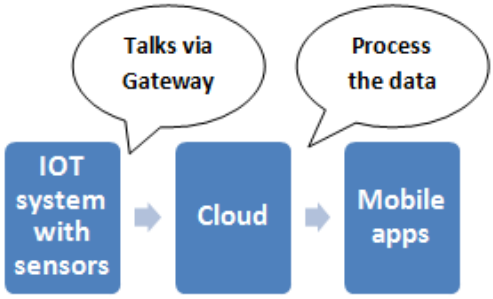


Fig 1: Communication between IoT and Mobile apps

III WHY IOT NEEDS MOBILE APP?

- Mobile apps will produce the most return on investment. [10]
- Mobile app save cost and resources as user can communicate with various devices via a single interface.
- Give personalize experience to users via taking their geographical location and suggests recommendations as according to their interest preferences.
- The speed of data streaming in mobile app is super fast due to secure protocols such as HTTPS, MQTT, and CoAP.
- The most importantly to manage data, there is no way to allow or reach unofficial data via server.
- User friendly feature of mobile application provide massively importance in all the sectors of IoT

IV THE NEED FOR IOT

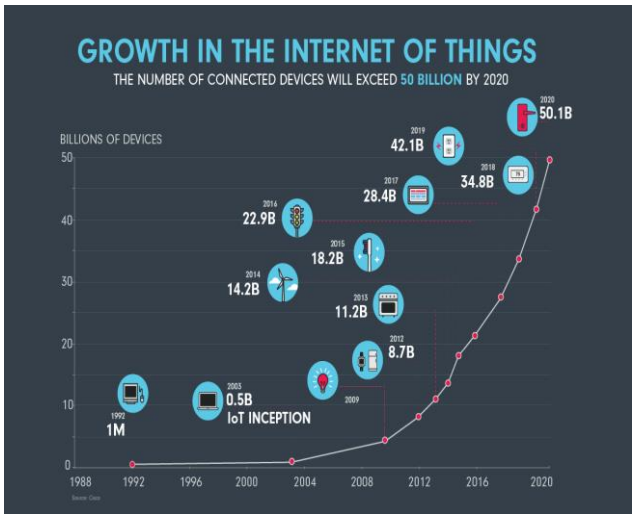
We still had devices us to do things for us before the IoT existed, so what is the difference with or without IoT? The difference is that you have to run from machine to machine telling them what to do for you.

However, the devices can communicate with the internet, cooperate and learn about the experiences of each other just as people do. Ultimately this is intended to decrease human interference in a machine cycle. The machines here are in a continuous touch with each other and could be pre instructed on what to do and when to do. Not just that these machines can even adapt to your needs and modified how they function. As we all know as a internet is a network of networks, it has a medium through which devices connect and the thing could literally be any object with intelligence to connect to the internet. Object is embedded with software or electronics; it could be your AC, your coffee machines, your cars or even a smart city. IoT therefore is essentially a platform that connects devices to the Internet every day, enabling them to interact and to exchange data.

V IOT PRESENT IN EVERYDAY LIFE

We have the internet of things in our daily lives this is probably a hallmark in the IoT industry as it's also one of the first industries to deploy IoT at its service. Few applications of the IoT for every day usage are: Consider the home appliance such as your ac currently what you do is that you go home you turn on your ac and wait to reach a temperature that you're like say about twenty five degrees Celsius. this is a perfectly functional setting but what if it could be better what if when your car was five minutes away ac received a message what if it is connected to a cloud which had a dashboard containing all the relevant information like the location of your car, the outside temperature and the temperature at which you like to your room. Your ac could then turn on before you arrived and create an ambience that you like. Thanks to the internet of things to do perfect settings via mobile app using smart phone. Other appliances for daily usage also can be control via mobile app like air purifier, water geyser, cooking burner etc.

According to National Cable & Telecommunications Association report states that there are more connected devices than there are human beings on the planet. The number of connected devices will exceed 50 billion by 2020. The Internet is not just developing, it's blowing up, and this numbers shows it in below image.



Source: National Cable & Telecommunications Association, "Broadband by the numbers," https://www.ncta.com/broad-band-by-the-numbers,

VI IOT GAME CHANGER FOR START UP COMPANIES

The latest example of various startups companies Vogo, Bounce, Yuluetc all are key-less vehicle rental application names. Vehicles are key-less which means you just scan the QR code on the vehicle, unlock the vehicle using Bluetooth and press the start button to start riding. The vehicle rental company is one of the strongest service companies. The face of the vehicle rental company has been altered from inside by automotive IoT solutions. IoT has allowed mobile applications to support company owners in the proper management of customer and vehicle maintenance properly. They can not only track their vehicle by location but also can follow up various others features of the vehicle such as fuel, the air pressure in the tires, etc. using IoT mobile applications.

VII CONCLUSION

Internet linked smart phones have risen from millions to billions in the last few years, but there are still several fields in which work is necessary. The devices forming the base of IoT are wireless in nature and reside many remote places where energy is a very vital issue. So with growing functionality of each device we need algorithms and hardware that are energy efficient to avoid quick draining of batteries. We need to make sure that sensors are active for a longer duration like any other advancement in technology. Even in IoT security is a stand out issue, this issue keeps getting bigger with more and more devices being connected to one another. In order to benefit lines and secure this data and privacy, we need information seclusion techniques. Now when we really tough to implement the anytime concept of IoT in reality but this needs continuous work and a closest to we can get to this is only by reducing the complexity off each existing time systems. In order to decrease the gap between almost real-time and actual IoT apps in real-time, we need to work constantly to bring enormous importance to our life. Indeed, it is always the time to open up the IoT professional, so it is the best time to explore the real potential of this technology.

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